

REMARKS

In the Office Action dated July 22, 2002, claims 1-30 were rejected under 35 U.S.C. § 103 over U.S. Patent No. 6,067,542 (Carino) in view of U.S. Patent No. 6,415,307 (Jones). Applicant respectfully traverses the rejection.

With respect to claim 1, the Office Action conceded that Carino fails to teach or suggest the displaying and depicting acts of claim 1. Specifically, claim 1 recites displaying steps of *a query execution plan* in a graphical user interface and depicting *parallel execution of steps of the query execution plan* in the graphical user interface. Note that claim 1 recites the displaying and depicting steps of a query execution plan.

Contrary to the assertion in the Office Action, Jones fails to teach or suggest the recited acts of displaying the steps of a query execution plan or depicting parallel execution of steps of a query execution plan in a graphical user interface. Jones teaches a screen-based information display system that displays both graphical images of pages of a printed publication as well as its text data. Jones, 2:8-10. The information display system provides for the simultaneous display of an image of the pages of a publication and text data. Jones, 2:10-12. The display of elements of a publication taught by Jones has nothing to do with displaying or depicting steps of an execution plan for a query in a parallel database system.

Therefore, even if Carino and Jones can be properly combined (which they cannot), the alleged combination of Carino and Jones fails to teach or suggest at least two elements of claim 1, namely the displaying and depicting acts. There is nothing within Carino and Jones to suggest that the steps for the execution plan for a parallel database system can be displayed and depicted in a graphical user interface. A person of ordinary skill in the art reading Carino and Jones in combination would not have been led to the recited displaying and depicting acts.

Therefore, a *prima facie* obviousness rejection with respect to claim 1 has not been established for at least the reason set forth above.

As a further basis for non-establishment of a *prima facie* obviousness rejection, Applicant also respectfully submits that Carino and Jones cannot be properly combined. No mention is made of displaying or depicting the steps of the query plan in Jones. Carino relates to the field of a database system, in which an optimizer generates a query or execution plan. On the other hand, Jones relates to displaying elements of a publication to enhance user convenience. There is nothing within Jones that would even remotely suggest to a person of ordinary skill in the art

that its display system can be used in the database system described in Carino for displaying steps of a query execution plan. Therefore, it is improper to combine Jones and Carino.

Independent claim 30 is allowable over the alleged combination of Carino and Jones for reasons similar to those of claim 1.

With respect to independent claim 11, there is nothing within the teachings of Carino and Jones that even remotely suggest *displaying* first and second execution plans *concurrently* to enable comparison of the execution plans. Carino is silent on the subject of displaying execution plans, while Jones teaches the use of a display system to display elements of a publication. Therefore, even if they can be properly combined (which they cannot), Carino and Jones do not teach or suggest the recited combination of elements. Furthermore, as discussed above, Carino cannot properly be combined with Jones as there is no motivation to combine these references.


With respect to independent claim 23, there is no teaching within Carino or Jones of a controller to determine an execution plan of the query *based on emulation data that emulates an environment of a target system in which a parallel database system is implemented*. Furthermore, the alleged combination of Carino and Jones does not teach or suggest a controller to display any representation of the execution plan in a graphical user interface. Therefore, the *prima facie* obviousness rejection with respect to claim 23 is also defective.

For the reasons set forth above, all independent claims are allowable over the cited references. Dependent claims are allowable for at least the same reasons as corresponding independent claims.

Allowance of all claims is respectfully requested. The Commissioner is authorized to charge any additional fees, including extension of time fees, and/or credit any overpayment to Deposit Account No. 50-1673 (9020).

Respectfully submitted,

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VERSION OF CLAIMS INDICATING CHANGES

Amend the following claim as indicated (un-amended claims in smaller font). New claims 31-34 are added.

- 1 1. A method of presenting an execution plan for a query, comprising:
2 determining steps of the query execution plan in a parallel database system;
3 displaying the steps of the query execution plan in a graphical user interface; and
4 depicting parallel execution of steps of the query execution plan in the graphical user
5 interface.
- 1 2. The method of claim 1, wherein determining the steps comprises determining steps of the
2 query execution plan in the parallel database system running in a multiprocessing platform having plural
3 nodes.
- 1 3. The method of claim 1, wherein determining the steps comprises determining steps of the
2 query execution plan in the parallel database system running in a platform having plural virtual processors
3 to handle access to data in the parallel database system.
- 1 4. The method of claim 1, wherein displaying the steps comprises displaying the steps as
2 icons.
- 1 5. The method of claim 1, wherein the database management system is executable in a
2 platform, and wherein displaying the icons comprises displaying one or more of the icons selected from the
3 group consisting of an icon representing a table, an icon representing an operation performed on a
4 component of the platform, an icon representing a query statement, and icon representing an operation
5 performed on two or more tables.
- 1 6. The method of claim 1, wherein determining the steps of the query execution plan is
2 performed by an optimizer.
- 1 7. The method of claim 6, wherein determining the steps of the query execution plan is
2 performed by an optimizer based on emulated environment data of a target system, the optimizer and
3 emulated environment data present in a test system.
- 1 8. The method of claim 1, wherein determining the steps of the query execution plan is
2 performed in a test system based on emulated environment data of a target system that is separate from the
3 test system.

1 9. The method of claim 1, further comprising displaying explain text of the query execution
2 plan.

1 10. The method of claim 9, wherein displaying the explain text comprises displaying the
2 explain text in a first screen, and wherein displaying the steps of the query execution plan comprises
3 displaying the steps in a second screen.

1 11. A method of testing performance of a query, comprising:
2 determining a first execution plan of the query under a first condition;
3 determining a second execution plan of the query under a second condition; and
4 displaying the first and second execution plans concurrently to enable comparison of the
5 execution plans.

1 12. The method of claim 11, wherein displaying the first and second execution plans
2 comprises displaying the execution plans in a graphical user interface.

1 13. The method of claim 11, wherein displaying the first and second execution plans
2 comprises displaying the execution plans in a graphical user interface having a first screen to display the
3 first execution plan and a second screen to display the second execution plan.

1 14. The method of claim 11, wherein displaying the first and second execution plans
2 comprises displaying a collection of icons to represent steps of each of the execution plans.

1 15. The method of claim 11, further comprising:
2 determining a third execution plan of the query under a third condition; and
3 displaying the first, second, and third execution plans concurrently to enable comparison
4 of the execution plans.

1 16. The method of claim 11, wherein determining the first execution plan comprises
2 determining an execution plan for the query in cooperation with a first version of a software module of a
3 parallel database system.

1 17. The method of claim 16, wherein determining the second execution plan comprises
2 determining an execution plan for the query in cooperation with a second version of the software module of
3 the parallel database system.

1 18. The method of claim 11, wherein determining the first execution plan comprises
2 determining an execution plan for the query in a system having a first arrangement.

1 19. The method of claim 18, wherein determining the second execution plan comprises
2 determining an execution plan for the query in a system having a second arrangement.

1 20. The method of claim 11, wherein determining the first execution plan comprises
2 determining an execution plan involving a table having a first content.

1 21. The method of claim 20, wherein determining the second execution plan comprises
2 determining an execution plan involving the table having a second content.

1 22. (Amended) The method of claim 21, wherein [determining]the second
2 content contains statistics.

1 23. (Amended) A system comprising:
2 a graphical user interface; and
3 a controller to determine an execution plan of a query based on emulation
4 data that emulates an environment of a target system in which a parallel database system
5 is implemented,
6 the controller to display[ing] a representation of the execution plan in the
7 graphical user interface.

1 24. The system of claim 23, wherein the emulation data comprises cost-related information
2 including a number of nodes in the target system and a number of CPUs in each node.

1 25. The system of claim 23, wherein the emulation data comprises cost-related information
2 including a number of virtual processors running in the target system.

1 26. The system of claim 23, wherein the emulation data comprises cost-related information
2 relating to costs of doing operations in the target system.

1 27. The system of claim 23, wherein the emulation data represents a target system having a
2 multi-node parallel processing system.

1 28. The system of claim 23, wherein the emulation data represents a target system having a
2 single-node multiprocessing system.

1 29. The system of claim 23, wherein the emulation data represents a target system running
2 plural virtual processors for handling access to the parallel database system.

1 30. (Amended) An article comprising one or more storage media containing
2 instructions that when executed cause a controller to:
3 determine an execution plan of a query for a parallel database system
4 [executable in a parallel system];
5 display the steps of the execution plan in a graphical user interface; and
6 depict parallel execution of steps of the execution plan in the graphical
7 user interface.

1 31. (New) The article of claim 30, wherein the instructions when executed
2 cause the controller including an optimizer to determine the execution plan of the query.

1 32. (New) The article of claim 30, wherein the instructions when executed
2 cause the controller to receive environment information to emulate a target database
3 system.

1 33. (New) The article of claim 32, wherein the instructions when executed
2 cause the controller to determine the execution plan of the query based on the
3 environment information.

1 34. (New) The article of claim 30, wherein the execution plan comprises a
2 first execution plan, wherein the instructions when executed cause the controller to
3 further:
4 determine a second execution plan of the query for the parallel database
5 system;
6 display the steps of the second execution plan concurrently with the steps
7 of the first execution plan in the graphical user interface.